



## PROCESS FOR THE CARBONYLATION OF PENTENENITRILE

### Abstract of the Disclosure

Processes to prepare 5-cyanovaleric acid or its ester is provided, by carbonylation of a pentenenitrile, wherein pentenenitrile is reacted with carbon monoxide and water and/or an alcohol in the presence of a catalyst system containing

- (a) a metal of Group VIII or a compound thereof,
- (b) a certain bidentate phosphine, arsine and/or stibine ligand, and
- (c) an acid having a pKa less than 3, as measured at 18 °C in an aqueous solution.

$\epsilon$ -caprolactam is also prepared by reduction of 5-cyanovaleric acid or ester obtained above to 6-aminocaproic acid or ester, and then cyclisation of the 6-aminocaproic acid or ester to  $\epsilon$ -caprolactam.